U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office
P.O. Box 68
Kremmling, CO 80459

ENVIRONMENTAL ASSESSMENT

NUMBER: CO-120-2008-49-EA

PROJECT NAME: North Sand Hills Fertilization

LEGAL DESCRIPTION: Jackson County

T11N R79W Sec 35
T10N R79W Sec 1, 2,
T10N R78W Sec 6

APPLICANT: BLM

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background: The browse species and bitterbrush found within the North Sand Hills are extremely important winter forage for mule deer and elk. The North Sand Hills area has been a vital winter range for these animals because of the high amounts of shrubs in the area. Currently, the bitterbrush has been over-utilized by mule deer and elk. The browse species on the adjacent private land has been mowed within the last 5 years. This has forced the elk and mule deer to concentrate in the North Sand Hills area. The goal of this project is to help stimulate the browse species and provide better winter range for elk and mule deer. The project is in cooperation with North Park Habitat Partnership Program (HPP), Colorado Division of Wildlife (CDOW), BLM Kremmling Field Office (KFO), and the Owl Mountain Partnership (OWP). The North Park HPP would fund this proposal.

Proposed Action: The Proposed Action is to treat 200-300 acres of mixed sagebrush, grass, and antelope bitterbrush with ammonium nitrate granular fertilizer within the North Sand Hills area (see map below). Ammonium nitrate fertilizer, which is 33 1/3% nitrogen, would be applied at a rate of 300 pounds-per-acre to achieve 100 pounds of nitrogen per-acre of habitat. This rate of application has been determined in past studies (Bayoumi and Smith 1976; Bilbrough and Richards 1993) to be the most cost effective when improving sagebrush habitat.

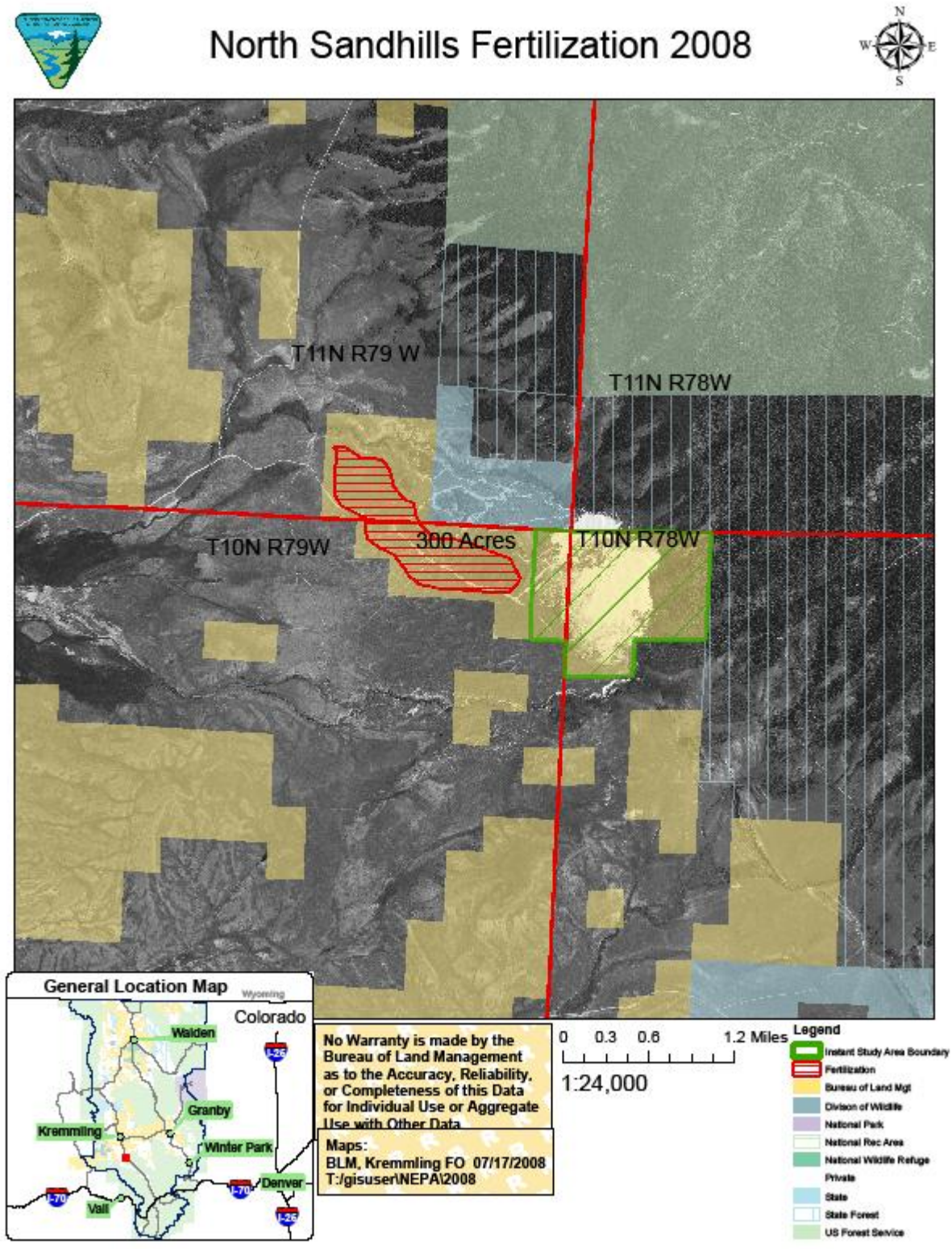
The fertilizer would be flown on a fixed wing aircraft (i.e. contracted through the BLM and funded by the North Park HPP) to specific locations near the North Sand Hills area. The nitrogen would be applied in the fall of 2008. The application would be accomplished in a single day. The goal of the project is to help stimulate browse species.

Design features of the Proposed Action:

- Surface application of fertilizer on frozen or snow-covered fields should be avoided.
- Application should not be done during windy conditions, during periods of low summer flows, and a minimum buffer of 500 feet from the streams should be maintained.
- Signs should be placed within the North Sand Hills one week prior to the fertilization notifying the public of the project. Signs should warn the public to stay out of the treatment area, and that aircraft noise could affect hunting success.
- BLM staff would be on-site during the application to notify any public camping within or near the project area.
- The BLM would utilize cages to monitor the success of the treatment every year for up to 5 years.
- The applicator would be required to follow label instructions for applying the fertilizer and to maintain a file containing Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which would be utilized during the course of this project.

No Action Alternative: Under this alternative, the proposed treatment would not occur. This would maintain current habitat conditions for deer and elk and the improvement of vegetation would occur at a slower pace, or not at all if current pressures remain.

Alternatives Considered But Eliminated From Further Analysis: Other treatments were considered by the North Park HPP, CDOW, KFO, and OWP, however, due to the soils and other species present, there were concerns that these other treatments (i.e. mowing sage, spike treatment) would cause more harm than good to bitterbrush.


North Sandhills Fertilization 2008
N
W
E
S
T11N R79 W
T11N R78W
T10N R79W
300 Acres
T10N R78W
General Location Map
Wyoming
Colorado
Walden
Granby
Kremmling
Winter Park
Denver
Vail
I-70
I-25
No Warranty is made by the Bureau of Land Management as to the Accuracy, Reliability, or Completeness of this Data for Individual Use or Aggregate Use with Other Data
Maps:
BLM, Kremmling FO 07/17/2008
T:/gisuser\NEPA\2008
0 0.3 0.6 1.2 Miles
1:24,000
Legend
Instant Study Area Boundary
Fertilization
Bureau of Land Mgt
Division of Wildlife
National Park
National Rec Area
National Wildlife Refuge
Private
State
State Forest
US Forest Service

PURPOSE AND NEED FOR THE ACTION: The objective of proposed project is to improve the quality and quantity of forage for elk and mule deer as well as other wildlife species that depend on the sagebrush steppe vegetative type.

There is a need to consider the project because bitterbrush and other browse species are critical forage on winter range for big game species. Since adjacent private lands have been mowed within the last five years, wildlife use on BLM-administered public lands has increased.

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Kremmling Resource Management Plan (RMP), Record of Decision (ROD)

Date Approved: December 19, 1984; Updated February 1999

The Proposed Action is in conformance with the LUP because it is specifically provided for in the Kremmling RMP/ROD as follows:

> Under *Livestock Grazing and Management (II B-4 level 2 # 6)*, the ROD calls for investing in cost effective range improvements...to implement grazing systems and meet specific objectives of AMPs. The Proposed Action is located in a livestock management priority area and the planned action is compatible with this priority. In addition, the Proposed Action is addressed in the ROD in *"Wildlife Habitat Management, Including Threatened and Endangered Species" (II-5.)*, which states, "Manage public land habitat to support optimum wildlife population levels as determined by the Colorado Division of Wildlife's Strategic Plan."

Name of Plan: Kremmling Resource Management Plan (RMP), Record of Decision (ROD)

Date Approved: December 19, 1984; Updated February 1999

Standards for Public Land Health: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. The following are the approved standards:

Standard	Definition/Statement
#1 Upland Soils	Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor, and minimizes surface runoff.
#2 Riparian Systems	Riparian systems associated with both running and standing water, function properly and have the ability to recover from major surface disturbances such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment, and provides forage, habitat and bio-diversity. Water quality is improved or maintained. Stable soils store and release water slowly.
#3 Plant and Animal	Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Communities	Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.
#4 Threatened and Endangered Species	Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.
#5 Water Quality	The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado. Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and anti-degradation requirements set forth under State law as found in (5 CCR 1002-8), as required by Section 303(c) of the Clean Water Act.

Because a standard exists for these five categories, a finding must be made for each of them in the environmental analysis. These findings are located in specific elements below or in the Interdisciplinary Team Analysis Review Record and Checklist (IDT-RRC) (Appendix 1).

AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES:

CRITICAL ELEMENTS: The following critical elements were determined to be potentially impacted and were carried forward for analysis from the IDT-RRC in Appendix 1.

WASTES, HAZARDOUS OR SOLID

Affected Environment: Ammonium Nitrate Fertilizer is classified as a Class 5 hazardous material. Class 5 refers to Oxidizer chemicals, a chemical which supplies its own oxygen and which helps other combustible material to burn more readily. Ammonium Nitrate may also cause ground and surface water pollution, which in high concentrations may be harmful to humans and aquatic life.

Environmental Consequences: There would be no adverse impacts from the Proposed Action as long as the application of Ammonium Nitrate occurs in a responsible manner. The applicator is required to maintain a file containing Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which would be utilized during the course of this project. This file is to be readily available at all times. Applicator would be responsible for properly following and complying with the guidelines set forth by the MSDS.

WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

Affected Environment: The proposed treatment would be within the Upper North Platte River basin, in the Canadian River 5th Order Watershed. The northern portion of the proposed treatment area would drain towards Government Creek, a small perennial stream that is tributary to the Canadian River. The southern potion would travel towards North Sand Creek, which is also tributary to the Canadian River. It appears that North Sand Creek is intermittent, as a BLM inventory in 1980 found a segment dry in the late summer. The project area has little to gentle slopes; with the southern portion having undulating slopes common to dunes.

Government Creek is classified by the state for agricultural and coldwater aquatic life- class 2. It is one of the only streams in North Park to be a class 2, which is defined as "not capable of sustaining a wide variety of coldwater biota, including sensitive species." The "Status of Water Quality Report" (Colorado Dept. of Health and Environment, 2008) rates Government Creek as fully supporting agriculture, class 2 (no primary contact) recreation, and class 2 coldwater aquatic life uses. North Sand Creek is not specifically identified as having any water quality impairments or concerns, and has not been classified by the state

The Kremmling Field Office (KFO) samples three segments of Government Creek, primarily for sediment loads, flows, and water quality field parameters such as pH, electrical conductivity, and temperature. Livestock grazing has created wide shallow stream segments with poor bank stability and little stream shading. Recreational vehicles have also damaged streambeds and banks with numerous trails and crossings. A grazing plan and fencing are improving the riparian zone along Government Creek. The BLM has very limited segments of North Sand Creek and does not monitor water quality or flows.

Ground water quality is unknown in the area. The KFO drilled 150-feet down in the SE ¼ of Section 35, near the treatment area. The drill log indicates 60-feet of sand underlain by 24-feet of sandy shale. Before hitting hard shale, there was a 7-foot thick gravel layer. No water was found and the hole was plugged. Geologic maps of the area indicate the highest potential for ground water would be in the first 200-feet from the surface. There are no known springs or seeps within or near the treatment areas.

Environmental Consequences: Nitrate is a highly soluble form of Nitrogen that can cause health problems if ingested in high amounts. Nitrogen forms can be a major concern in groundwater. In the subsurface environment, depending on the biological transformations that occur, the ammonium ion and/or nitrates can be a contaminant in groundwater. Ammonium ions are generally adsorbed by negatively charged soil particles in anaerobic conditions. Some movement in saturated soils can occur, but it is generally slow unless the adsorption capacity of the soil is exceeded. Ammonia gas can be released to the atmosphere as a function of the soil-liquid pH conditions when the pH is basic. Nitrate ions are negatively charged and are not attracted to soils. Nitrates are more mobile than ammonium ions in both saturated and unsaturated conditions. If nitrate reaches ground water, it becomes very mobile and can migrate great distances. High nitrate levels in drinking water results in methemoglobinemia, "blue baby syndrome", in very young infants and farm animals. Ammonium nitrate fertilizer is considered to be highly leachable, depending on the soil properties and climatic factors.

The Colorado Legislature passed the Agricultural Chemicals and Groundwater Protection Act (SB 90-126) to avoid restrictive controls on farmers. The act calls for use of Best Management Practices (BMPs) to prevent water contamination and to avoid the need for further regulation and mandatory controls. If voluntary measures are insufficient to protect groundwater quality, then additional regulations would be adopted by the state.

Due to the location of the treatment area in a sandy rangeland environment (i.e. no irrigation), the potential leaching hazard is considered slight to moderate. Slight hazards are based on the aquifer being uncontaminated and deeper than 25-feet from the surface, and moderate hazards if the aquifer properties are unknown. Due to the lack of an identified aquifer or shallow water table in the treatment area and the application being a one-time application, the leaching hazard associated with this proposed project is slight.

The operator would utilize appropriate BMPs (see design features of proposed action) to reduce the leaching hazard. Most of the other recommended BMPs for fertilizer application are for agricultural fields where irrigation and/or repeated fertilization are practiced and are not applicable to this proposed action or included as design features.

The mapped soil series, Bangston fine sand, generally has about 3% organic matter, so the soil itself does not have high nitrogen sources. The rangeland site would not be expected to have nitrogen reserves as it has not been fertilized previously. The application rate, determined by observation and not on the site, might be improved by soil analysis, but is not excessive. By applying in the fall, however, there would be little expected plant uptake until late spring. This allows leaching and volatization to reduce the amount of nitrate actually available for the targeted plants. The spring moisture, however, can be less predictable than the winter snow moisture. May and June precipitation in Walden averages 1.32 and 1.08 inches respectively.

These last three years, however, have had drier Mays and June precipitation of less than 0.5 inches. The winter snows, even if below average, would help get the fertilizer into the soil.

Depending on specific climatic conditions, drift could also occur that would reach Government Creek. Nitrogen is a relatively non-toxic element for both humans and aquatic life, especially as a onetime incident. Peak concentrations usually occur within 72 hours of application. Private hay meadows are fertilized in the spring and represent a much larger nutrient load to the surface waters. During the summer months, however, Government Creek tends to have warm water temperatures due to the high width/depth ratio in the stream. If some nitrogen reaches surface waters, it would be quickly diluted by downstream movement or adsorbed by the bottom's sediments. If enough loading occurred during low flows, a vegetative bloom could occur. Due to the low flows and warm temperatures, this would deplete the stream of oxygen. See design features of the Proposed Action for fertilizer application BMPs.

Finding on the Public Land Health Standard for water quality: With BMPs, the one-time application would pose little threat to surface or groundwater quality. The Proposed Action and the No Action Alternative would not affect the area's ability to meet the standard.

NON-CRITICAL ELEMENTS: The following non-critical elements were determined to be potentially impacted and were carried forward for analysis from the IDT-RRC in Appendix 1.

VEGETATION (includes a finding on Standard 3)

Affected Environment: The vegetation within the North Sand Hills area is a mixture of sagebrush, bitterbrush, and native grasses and forbs. Due to the high winter concentration of wildlife (i.e. elk, deer, and other species), they seek bitterbrush and other browse species to help maintain their body needs. Currently, bitterbrush has been over-utilized by mule deer and elk which have caused some bitterbrush plants to die-off while other plants have lost vigor due to repeated grazing by wildlife. The loss of vigor could eventually cause the bitterbrush plants to die. Once these plants die-off, it becomes very hard to reestablish these plants.

Environmental Consequences: Applying nitrogen to the area would help stimulate forage, thus increasing browse for wildlife and grass species for livestock. Nitrogen would initially increase the production, vigor, and crude protein content of browse species. It would also promote the growth of other grass and forb species in the area, changing the plant community composition. The application of nitrogen would help the forage in the short term, but would not be a long term solution to overutilization of bitterbrush in the project area. Further work with CDOW and other partners is occurring to determine alternative management options for this area with regards to wildlife.

Under the No Action Alternative, the vegetation would not be stimulated using nitrogen and the overall health of the bitterbrush in the area would continue to decline. Improvement of vegetation would occur at a slower pace if forage conditions improve on adjacent private lands.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): This proposed project area was assessed for standards in 2006. It was determined the allotment is meeting the Colorado Standards for Public Land health.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The proposed project area provides important habitat for a variety of wildlife including mule deer, pronghorn antelope, Rocky Mountain elk, white-tailed jackrabbits, coyotes and several species of small rodents. Deer and elk inhabit the units proposed for fertilization during winter, while pronghorn are spring and summer residents. The other mammals listed above are yearlong residents.

The proposed treatment units are classified as important deer and elk winter range by the CDOW. CDOW personnel assisted the KFO with the selection of these parcels because of their importance to upland wildlife, especially mule deer and Rocky Mountain elk.

Environmental Consequences: The proposed ammonium nitrate application would add nitrogen to area soils, resulting in increased vegetative productivity in the treated areas which would add forage and cover to the treated areas. This would indirectly benefit wildlife in the area by increasing forage, thus increasing the potential to attract and hold deer and elk.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): The proposed project would enhance the area's ability to meet land health standards for plant and animal communities.

RECREATION/ACCESS/NOISE

Affected Environment: The proposed project area provides important Off Highway Vehicle (OHV) opportunities and big game hunting opportunities of mule deer, pronghorn antelope, and elk. The North Sand Hills Special Recreation Management Area (SRMA) is located adjacent to the project area. OHV-use during the proposed application period is low compared to summer and spring months. Big game hunting within the North Sand Hills increases during the October combined rifle seasons with hunting camps and day-use occurs. The noise levels increase with the increased OHV-use during the summer months. The area provides access to the Colorado State Land Board lands, U.S. Forest Service lands, and State Forest State Park lands.

Environmental Consequences: Under the Proposed Action, the use of fixed wing aircraft for application would increase noise levels that may impact hunting opportunities within the North Sand Hills. Hunting opportunities are impacted by noise disturbances since wildlife is directly affected by noise disturbance and would be displaced to other areas. Since the North Sand Hills is bordered by private lands to the west and south, game could be potentially displaced to these areas and the public hunting success rate could be reduced in the short-term during application activities. However, the fertilization project could enhance long-term big game hunting opportunities in the project area. Since the fertilization application would occur adjacent to Jackson County Road 6S and primitive roads and trails in the project area, signage would be placed within the project area notifying the public of the potential conflicts and BLM staff would be on-site during operations (see design features of the Proposed Action for signage and staffing requirements).

Under the No Action Alternative, there would not be any short-term impacts to recreation opportunities in the North Sand Hills area. There could be future, indirect impacts to hunting opportunities if the vegetative communities within the North Sand Hills continues to decline and are unable to hold greater numbers of big game species. There would be no noise or access impacts with implementation of the No Action Alternative.

CUMULATIVE IMPACTS SUMMARY: The geographic boundary for the cumulative impact analysis is the area surrounding the North Sand Hills.

In regards to past actions, as mentioned earlier, private lands within the geographic area have been mowed within the last five years. There have also been impacts to vegetation (i.e. loss of vegetation) from recreational vehicles (i.e. OHVs) and recreational activities (i.e. dispersed camping) in the North Sand Hills SRMA. Government Creek also flows through the geographic area and has experienced impacts from past actions (i.e. recreation vehicles damaging strembanks and grazing pressures). The BLM has taken actions, such as fencing, to improve the riparian habitat along Government Creek.

In regards to present actions, the Proposed Action has the potential to cause beneficial impacts (i.e. increase the production, vigor, and crude protein content of browse species) to the project

area's vegetation. This could indirectly benefit wildlife utilizing the area during the winter months. The Proposed Action has a minor potential to adversely impact water quality, if nitrogen would reach Government Creek.

In regards to future actions, the KFO, in partnership with the CDOW, North Park HPP, and OMP, is looking at future actions to address the overutilization of bitterbrush in the project area. The KFO is also planning on constructing additional fence exclosures in the North Sands Hills SRMA to prevent future vegetation loss, and will continue to monitor Government Creek.

PERSONS / AGENCIES CONSULTED: North Park Habitat Partnership Program, Colorado Division of Wildlife, and the Owl Mountain Partnership. The project would be funded by the North Park HPP. These agencies and organizations support the project.

INTERDISCIPLINARY REVIEW: See IDT-RRC in Appendix 1.

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CO-120-2008-49-EA

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that the Proposed Action will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

DECISION RECORD

DECISION: It is my decision to authorize the Proposed Action as described in the attached EA. This decision is contingent on meeting all mitigation measures and monitoring requirements listed below.

RATIONALE: The Proposed Action has the potential to improve the quality and quantity of forage for elk and mule deer as well as other wildlife species that depend on the sagebrush steppe vegetative types within the project area.

MITIGATION MEASURES: See Attachment #1.

COMPLIANCE/MONITORING: The BLM will utilize cages to monitor the success of the treatment every year, for up to 5 years.

NAME OF PREPARER: Mandy Scott

NAME OF ENVIRONMENTAL COORDINATOR: Joe Stout

DATE: 10/14/08

SIGNATURE OF AUTHORIZED OFFICIAL: /s/ David Stout

DATE SIGNED: 10/14/08

ATTACHMENTS:

1). Stipulations

APPENDICES:

Appendix 1 – Interdisciplinary Team Analysis Review Record and Checklist
Appendix 2 – Bibliography

Attachment #1

North Sand Hills Fertilization EA Stipulations

- Surface application of fertilizer on frozen or snow-covered fields will be avoided.

- Application will not be done during windy conditions, during periods of low summer flows, and a minimum buffer of 500 feet from the streams will be maintained.

- Signs will be placed within the North Sand Hills one week prior to the fertilization notifying the public of the project. Signs will warn the public to stay out of the treatment area, and that aircraft noise could affect hunting success.

- BLM staff will be on-site during the application to notify any public camping within or near the project area.

- The BLM will utilize cages to monitor the success of the treatment every year for up to 5 years.

- The applicator is required to follow label instructions for applying the fertilizer and to maintain a file containing Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which will be utilized during the course of this project.

Appendix #1

INTERDISCIPLINARY TEAM ANALYSIS REVIEW RECORD AND CHECKLIST:

Project Title: North Sand Hills Fertilization
Project Leader: Mandy Scott

Consultation/Permit Requirements:

Consultation	Date Initiated	Date Completed	Responsible Specialist/ Contractor	Comments
Cultural/Archeological Clearance/SHPO	9/18/08	9/18/08	BBW	The action is not considered an undertaking as defined under the NHPA of 1966, as amended, and it's implementing regulations.
Native American	9/18/08	9/18/08	BBW	The action is not considered an undertaking as defined under the NHPA of 1966, as amended, and it's implementing regulations.
T&E Species/FWS	N/A	N/A	M.McGuire	
Permits Needed (i.e. Air or Water)	N/A	N/A	PBelcher	

(NP) = Not Present
(NI) = Resource/Use Present but Not Impacted
(PI) = Potentially Impacted and Brought Forward for Analysis.

NP NI PI	Discipline/Name	Date Review Comp.	Initials	**Review Comments** (required for Critical Element NIs, and for elements that require a finding but are not carried forward for analysis.)
CRITICAL ELEMENTS				
NI	Air Quality **Belcher**	09/08/08	PB	Depending on the form of fertilizer, there may be a small amount of dust for a short time period. There would be no air quality impacts that would affect humans, wildlife, or vegetation in the area.
NP	Areas of Critical Environmental Concern **J. Stout**	10/14/08	JS	There are no Areas of Critical Environmental Concern in the proximity of the proposed project area.
NI	Cultural Resources **Wyatt**	9/18/08	BBW	The action is not considered an undertaking as defined under the NHPA of 1966, as amended, and its implementing regulations. Thus, there would be no impacts to historic properties.
NP	Environmental Justice **J. Stout**	10/14/08	JS	According to the most recent Census Bureau statistics (2000), there are no minority or low income communities within the Kremmling Planning Area.
NP	Farmlands, Prime and Unique **Belcher**	09/08/08	PB	There are no farmlands, prime or unique, in the proximity of the proposed project area.
NP	Floodplains **Belcher**	09/08/08	PB	There are no floodplains that would be affected by the Proposed Project.
NI	Invasive, Non-native Species **Scott**	6/16/08	MS	There are no known invasive or non-native species within the study area. The Proposed Action would not contribute to an increase in

				invasive species.
NI	Migratory Birds **McGuire**	9/12/08	MM	The Proposed Action would not impact migratory birds.
NI	Native American Religious Concerns **Wyatt**	9/18/08	BBW	The action is not considered an undertaking as defined under the NHPA of 1966, as amended, and it's implementing regulations.
NI	T/E, and Sensitive Species (Finding on Standard 4) **McGuire**	9/12/08	MM	No T/E or Sensitive Species would be impacted by the Proposed Action. Finding: The proposed project would enhance the area's ability to meet Standard 4.
PI	Wastes, Hazardous and Solid **Hodgson**	9/15/08	KH	See analysis in EA.
PI	Water Quality, Surface and Ground (Finding on Standard 5) **Belcher**	09/08/08	PB	See analysis in EA.
NI	Wetlands & Riparian Zones (Finding on Standard 2) **Belcher**	09/08/08	PB	Finding: The proposed action would be a sufficient distance from the riparian zones.
NP	Wild and Scenic Rivers **Sterin**	09/11/08	BGS	There are no eligible Wild and Scenic River segments in the proposed project area.
NP	Wilderness **Windsor**	9/12/08	AW	The project is adjacent to the North Sand Hills ISA/WSA. The proposed action is outside the WSA.
NON-CRITICAL ELEMENTS (A finding must be made for these elements)				
NI	Soils (Finding on Standard 1) **Belcher**	09/08/08	PB	Finding: Research studies done in North Park have shown little long term impacts to soil health from fertilization projects. Initially some microrhyzial populations are decreased, but they appear to rebound in 2 years. Due to the sandy textures, this decrease would be expected to be minimal.
PI	Vegetation (Finding on Standard 3) **Torma**	9/4/08	PT	See analysis in EA.
NP	Wildlife, Aquatic (Finding on Standard 3) **McGuire**	9/12/08	MM	No aquatic wildlife present. Finding: N/A
PI	Wildlife, Terrestrial (Finding on Standard 3) **McGuire**	9/12/08	MM	See analysis in EA.
OTHER NON-CRITICAL ELEMENTS				
PI	Access/Transportation **Monkouski**	9/15/08	JJM	See analysis in EA.
NP	Fire **Wyatt**	9/18/08	BBW	No impacts.
NP	Forest Management KBelcher	9/04/08	KWB	No forest resources present
NI	Geology and Minerals **Hodgson**	8/20/08	KH	No impact.
NI	Hydrology/Water Rights **Belcher**	09/08/08	PB	Hydrologic concerns are addressed in the water quality section. There would be no impacts to water rights.
NI	Paleontology **Rupp**	8/19/08	FGR	There would be no impacts.
PI	Noise **Monkouski**	9/15/08	JJM	See analysis in EA.
NI	Range Management **Torma**	9/15/08	PT	No impact to grazing
NI	Lands/ Realty Authorizations **Cassel**	6/26/08	SC	There are no leases or permits in the proposed project location. There are two rights-of-way to WAPA (COC-12349 & COC-22720) for overhead transmission lines. There would be no impact to these rights-of-way by the proposed project, but since this project is an aerial application, the applicator should be

				made aware of the obstacle of the overhead transmission line.
PI	Recreation **Monkouski Windsor**	9/15/08	JJM	See analysis in EA.
NI	Socio-Economics **J. Stout**	10/14/08	JS	There would be no impacts.
NI	Visual Resources **Hodgson**	8/20/08	KH	No impact.
PI	Cumulative Impact Summary **J. Stout**	10/14/08	JS	See analysis in EA.
FINAL REVIEW				
	P&E Coordinator **J. Stout**	10/14/08	JS	
	Field Manager **D. Stout**			

Appendix #2

BIBLIOGRAPHY

Bayoumi, M.A. and A.D. Smith. 1976. Response of big game winter range vegetation to fertilization. J. Range Mgt. 29:1 pp 44-48.

Bilbrough C.J. and J.H. Richards. 1993. Growth of sagebrush and bitterbrush following simulated winter browsing: mechanisms of tolerance. Ecology. 74:2 pp 481-492.